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Pentagrid Converter

7-PIN MINIATURE TYPE

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage (AC or DC)	6.3 ± 10%	volts
Current at 6.3 volts	0.3	amp

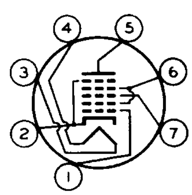
Direct Interelectrode Capacitances: ←

	Without External Shield	*With External Shield*[a]	
Grid No.3 to all other electrodes (RF input)	7	7	μμf
Plate to all other electrodes (Mixer input)	8	13	μμf
Grid No.1 to all other electrodes (Oscillator input)	5.5	5.5	μμf
Grid No.3 to plate	0.3 max.	0.25 max.	μμf
Grid No.3 to grid No.1	0.15 max.	0.15 max.	μμf
Grid No.1 to plate	0.1 max.	0.05 max.	μμf
Grid No.1 to cathode & grid No.5	3	3	μμf
Cathode & grid No.5 to all other electrodes except grid No.1	15	20	μμf

Mechanical:

Operating Position	Any
Maximum Overall Length	2-1/8"
Maximum Seated Length	1-7/8"
Length, Base Seat to Bulb Top (Excluding tip)	1-1/2" ± 3/32"
Diameter	0.650" to 0.750"
Dimensional Outline	See *General Section*
Bulb	T5-1/2
Base	Small-Button Miniature 7-Pin (JEDEC No.E7-1)
Basing Designation for BOTTOM VIEW	7CH

Pin 1 - Grid No.1
Pin 2 - Cathode, Grid No.5
Pin 3 - Heater
Pin 4 - Heater



Pin 5 - Plate
Pin 6 - Grid No.2, Grid No.4
Pin 7 - Grid No.3

CONVERTER

Maximum Ratings, *Design-Maximum Values:* ←

PLATE VOLTAGE	330	max.	volts
GRID-No.3 (CONTROL-GRID) VOLTAGE:			
Negative-bias value	55	max.	volts
Positive-bias value	0	max.	volts
GRIDS-No.2 & No.4 (SCREEN-GRID) SUPPLY VOLTAGE	330	max.	volts
GRIDS-No.2 & No.4 VOLTAGE	110	max.	volts

← Indicates a change.

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CATHODE CURRENT	15.5	max.	ma
GRIDS-No.2 & No.4 INPUT	1.1	max.	watts
PLATE DISSIPATION	1.1	max.	watts
PEAK HEATER-CATHODE VOLTAGE:			
Heater negative with respect to cathode	200	max.	volts
Heater positive with respect to cathode	200[b]	max.	volts

Characteristics:

	With separate excitation[c]		
Plate Voltage	100	250	volts
Grid-No.3 Voltage	-1.5	-1.5	volts
Grids-No.2 & No.4 Voltage	100	100	volts
RMS Grid-No.1 (Oscillator Grid) Voltage	10	10	volts
Grid-No.1 Resistor	20000	20000	ohms
Plate Resistance (Approx.)	0.4	1	megohm
Conversion Transconductance	455	475	μmhos
Grid-No.3 Voltage (Approx.) for conversion transconductance (μmhos) =			
10	-30	-30	volts
100	-6	-6	volts
Plate Current	2.6	2.9	ma
Grids No.2 & No.4 Current	7	6.8	ma
Grid-No.1 Current	0.5	0.5	ma
Cathode Current	10.1	10.2	ma

Oscillator Characteristics (Not Oscillating):

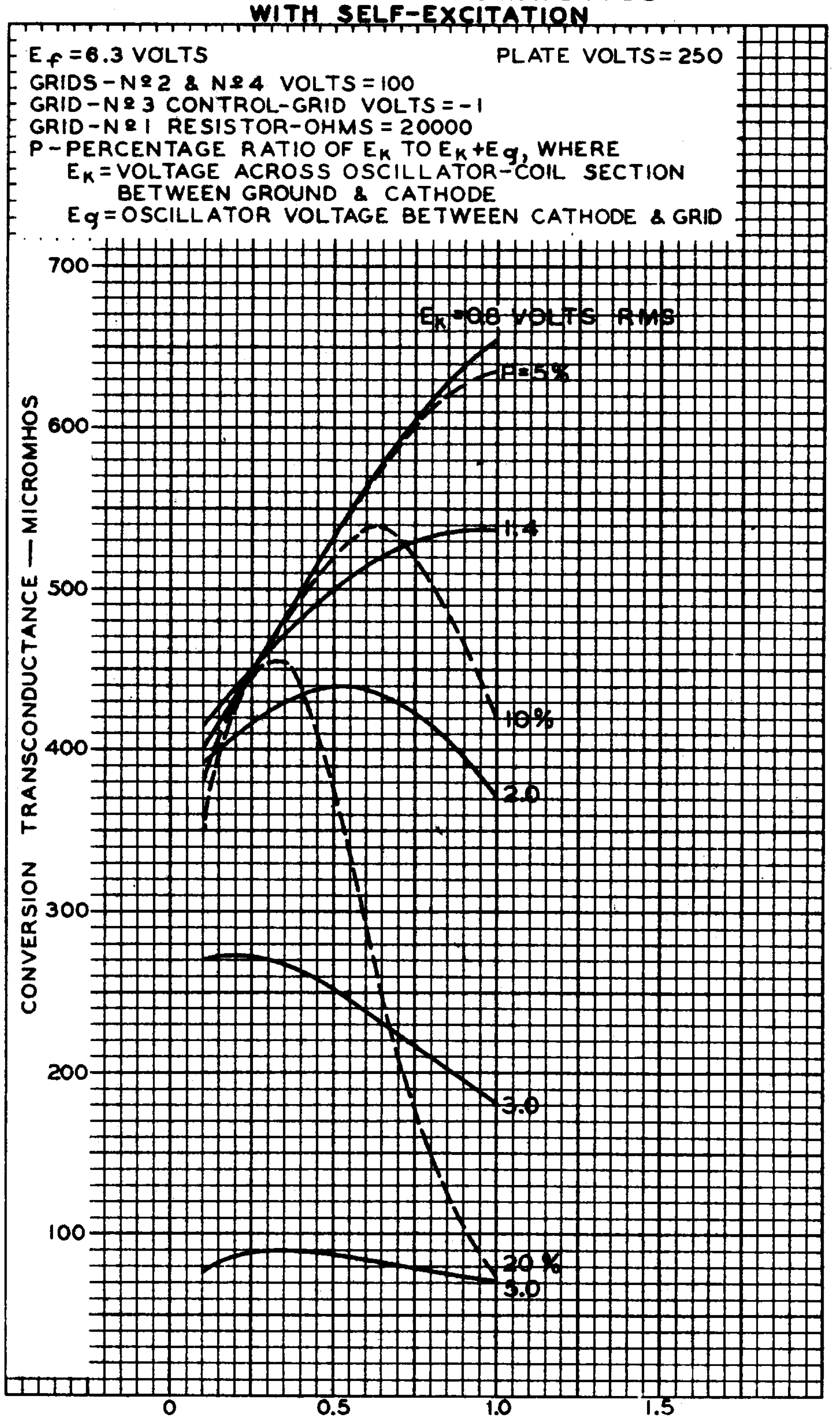
	With grids No.2 & No.4 connected to plate	
Plate and Grids-No.2 & No.4 Voltage	100	volts
Grid-No.3 Voltage	0	volts
Grid-No.1 Voltage	0	volts
Amplification Factor between grid No.1 and grids No.2 & No.4 connected to plate	20	
Transconductance between grid No.1 and grids No.2 & No.4 connected to plate	7250	μmhos
Cathode Current	25	ma
Grid-No.1 Voltage (Approx.) for plate μa = 10	-11	volts

[a] With external shield JEDEC No.316 connected to cathode.
[b] The dc component must not exceed 100 volts.
[c] The characteristics shown with separate excitation correspond very closely with those obtained in a self-excited oscillator circuit operating with zero bias.

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OPERATION CHARACTERISTICS WITH SELF-EXCITATION



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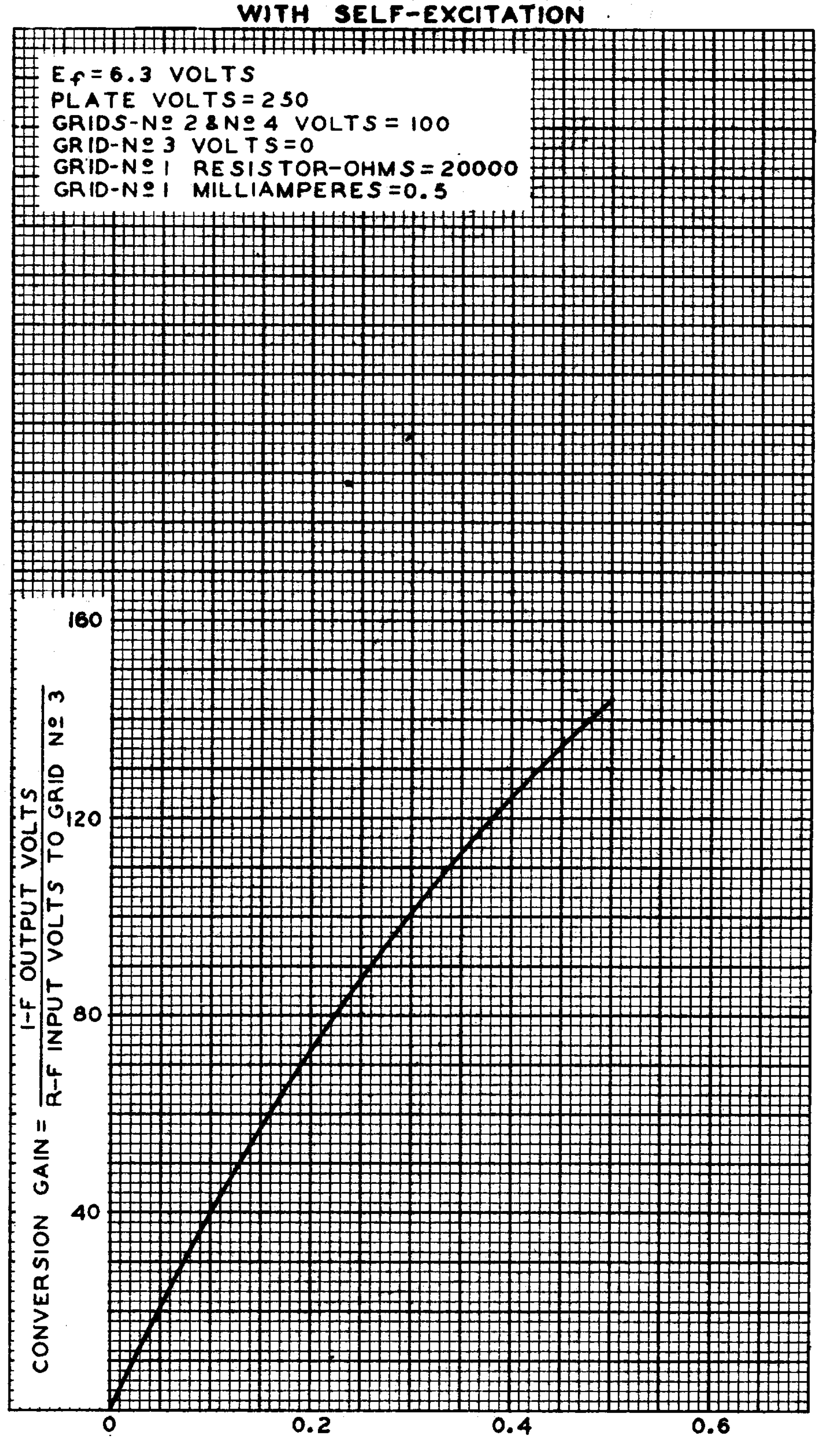
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OPERATION CHARACTERISTIC
WITH SELF-EXCITATION



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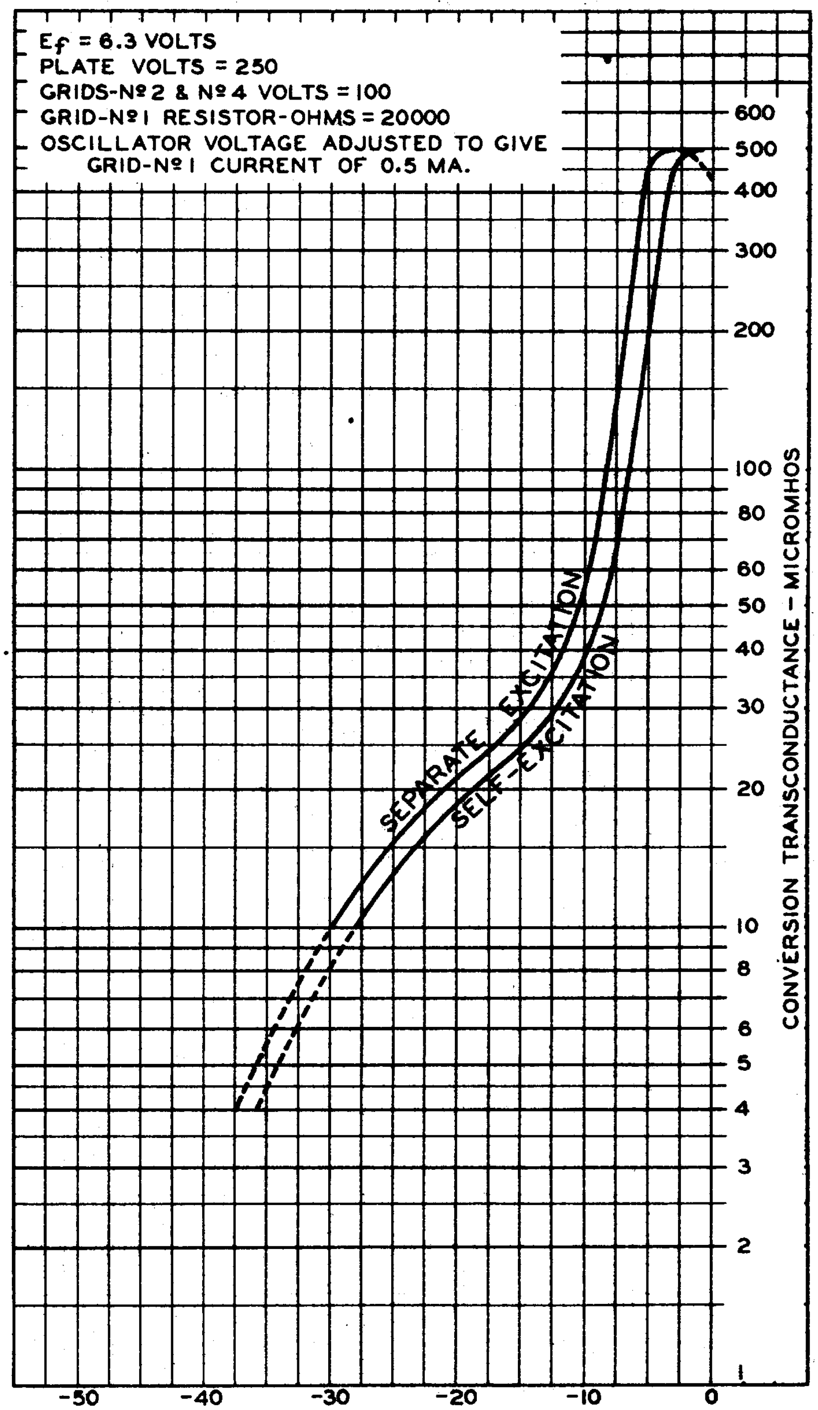
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OPERATION CHARACTERISTICS



SEPT. 26, 1945

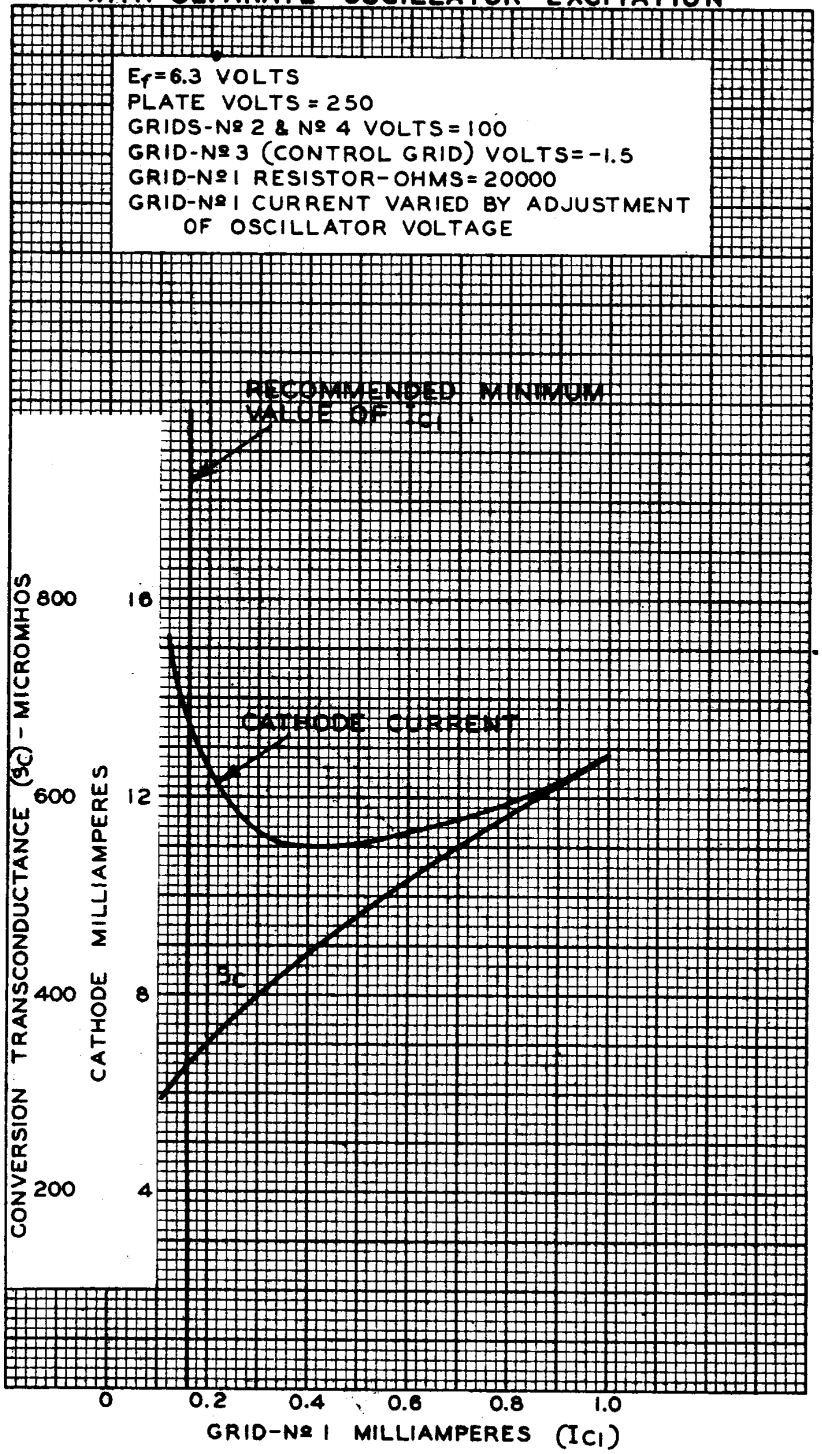
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OPERATION CHARACTERISTICS
WITH SEPARATE OSCILLATOR EXCITATION



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